

# CHAMBERS'S JOURNAL

OF  
POPULAR

LITERATURE, SCIENCE, AND ART

Fifth Series

ESTABLISHED BY WILLIAM AND ROBERT CHAMBERS, 1832

No. 543.—VOL. XI.

SATURDAY, MAY 26, 1894.

PRICE 1½d.

## A RIDE INTO AFGHANISTAN.

By DAVID KER.

To find one's way by a trail of skeletons over a stony, burning plain in one of the wildest parts of Asia, in company with four grim-looking and well-armed Eastern horsemen, who are as expert at robbing and murdering as the savagest brigands that swarm in the hills above, is something of an adventure; and this was just how my wife and I found ourselves employed one fine, clear January morning, at the time when the last Afghan war was slowly burning itself out.

Our breakfast that morning at the little English outpost of Sibi, with books and newspapers around us, and a train puffing in with its load of soldiers right in front of our windows, had been quite a civilised affair; but we had already had plenty of proofs that the region into which we were penetrating was one of the most untameably savage in the world. Only the day before, we had found the bodies of two murdered men close to our quarters; and now another equally characteristic feature of the country suddenly presented itself—a small round tower of rough stones, with a narrow opening in its side close to the ground, just big enough to let one man creep into or out of it at a time.

'See,' said I; 'that thing's called a tower of refuge, such as you read of in the Psalms. When the peasants see a band of robbers coming down from those hills yonder, they leave their work, and bolt in through that hole like rabbits, and block it up with a big stone that lies all ready inside; and there they stay till the robbers are gone.'

In this extraordinary country, even in the depth of winter and with snow on the hills, the rocks around us were almost too hot to be touched with the bare hand; and riding over this stony desert in the full glare of the sun was trying work even for us. But we

could not linger, for a British column was marching ahead of us up the Bolan Pass—one of the two gateways in the great mountain-wall that shuts off Southern Afghanistan from the outer world—and we were hurrying to catch it up and join it.

The distant view of the green gardens and clustering trees around the Beluchee village of Dadur, away to the south, only intensified the dreariness of the grim waste before us. Dry beds of stone and gravel, dusty hollows, cracked and gaping like thirsty mouths, flat, dismal wastes of burning sand dotted with stray clumps of prickly scrub, lay outspread mile after mile, beneath the blistering glare of the sunshine.

Quite in keeping with this wild scene was the grim aspect of our four guards—Beluchee warriors from the great southern desert, fierce, hardy, and untiring, as the wild beasts of their native wilderness. Strange-looking fellows they were, whose appearance in the streets of New York or London would collect a larger crowd than any circus, and whom Fenimore Cooper could have named at a glance after the creatures that they resembled. The leader—who was over six feet, but so lank and supple that one might almost have corded a trunk with him—might fairly claim the now famous title of 'Big Serpent.' No. 2's small, spare frame, sharp face, and deep-set glittering eye, at once reminded me of a rat. No. 3's flat nose, low forehead, and broad heavy jaw might have served Landseer himself as a model for a bulldog; while any Western buffalo would have recognised a brother in the bulky form and huge, black, shaggy head of No. 4.

The dress of these desert warriors—all of whom had curved swords by their sides and short guns slung at their backs—was as strange as their aspect. The Snake was clad in successive waterfalls of white cotton, ending in one great gush that reached to his ankles, while a supernumerary rapid of loose turban ran half-way down his back. The Rat's appearance suggested his having pawned all his clothes, and

then wrapped himself in a collier's table-cloth. The Bulldog's turban was twisted as tightly round his head and neck as if the head had been cut off and tied on again; while the Buffalo had drawn the broad leather girdle of his buff-coloured coat so close as to divide himself into two hemispheres, like a school map of the world. Even the rough, wiry, little horses were adorned with necklaces of blue glass beads, and required only a pair of earrings apiece to make them complete.

Splash! we plunge suddenly down a steep gravelly ridge right into the Bolan River itself; but the torrent which, in the rainy season, can sweep away men and horses like straws, has now dwindled to a brook only a few inches in depth, and we cross it easily enough. And now the vast gray precipices close in on either side, and we are fairly in the gorge at last. Frowning cliffs above, shattered rocks below, heat and dust everywhere; a tremendous desolation, a gloomy and awful silence. No sight or sound of life save the hoarse scream of a vulture from its perch on the skeleton of a camel among the fallen boulders, or the clattering tread of an Afghan rider who comes dashing along the rough, rocky path, with the long barrel and sickle-shaped stock of his *jezail* (rifle) projecting full three feet on either side of the saddle-bow, and his keen black eyes shooting a wolfish glance at us as he flits by. Gaunt, wiry, enduring, crafty as a fox and ferocious as a tiger, he is indeed a true type of the bandit race to which he belongs—the men who, as soon as a child can crawl, make him creep through a hole cut in the mud wall of the house, as if stealing in to plunder it, while the family shout in chorus, 'Ghal shah! ghal shah!' (Be a thief! be a thief!)

Suddenly a cloud comes over the sinking sun, and Mrs Ker lets down the white parasol that has hitherto shielded her, and gives it into the hands of the Big Serpent. The worthy savage—who has probably never seen a lady's parasol before—holds it out at arm's length for a moment with a wondering grin on his lean dark face, such as one sees in the pictures of Robinson Crusoe's 'Man Friday' trying on his first suit of clothes. Then he begins to pull it about with the eagerness of a child examining a new toy, and soon discovers the spring and the way in which it acts. In his delight, he puts the sunshade up and down three or four times in quick succession, and then suddenly dashes away up the pass for a quarter of a mile, and back to us again, waving the parasol over his head and yelling like a madman. The Rat and the Bulldog eye him with a look of amused astonishment, and aim at him a few plain-spoken Oriental jokes; while the Buffalo turns his broad back on the undignified spectacle with an air of quiet scorn.

But all this while where is the camp of Kohan-Dilani, whither we are bound? Afternoon has passed into evening—evening is fast waning toward night—and still there is no sign of it. In an hour more it will be quite dark, and—as we already know to our cost—the darkness will bring with it the robbers, who are sure to be active in the rear of a British column, in the hope of picking up

stragglers and abandoned stores. Against a whole band of armed mountaineers—of whose merciless cruelty we had seen fearful proofs only the day before—neither our own revolvers nor the rusty guns of our escort would be likely to help us much, to say nothing of the chance of the Big Serpent and his crew joining in plundering us (as they most probably would) instead of resisting.

From these unpleasant musings I was suddenly roused by the worthy Serpent himself, who brought his horse alongside of mine, and pointing up the gorge, said impressively, in almost the only Hindustani words that he knew: 'Dekho, Sahib! Kohan-Dilani hai.' (See, sir, there's Kohan-Dilani.)

There, sure enough, on a bare rocky plateau about half a mile ahead of us, rows of white tents are seen ranged in symmetrical order, and a number of small fires twinkle cheerily through the fast-falling shadows of night.

Late—but better late than never. We splash once more through the eternal Bolan River—which seems to have as many twists as a corkscrew, for we have crossed and recrossed it at least a dozen times already—and, putting our horses to speed, come dashing into the camp in gallant style, with our gang of Beluchee scarecrows at our heels. In another minute we are exchanging hand-shakes and hearty greetings with a hospitable group of English officers; while the soldiers hail the arrival of the first lady who has come up the Pass since the war began, with a cheer that rolls along the silent gorge like a peal of thunder.

## AT MARKET VALUE.\*

### CHAPTER XXII.—ISLES OF WINTER.

ARNOLD WILLOUGHBY had a strong constitution; but that second summer in the northern seas told upon his health even more seriously than all his previous seafaring. Perhaps it was the result of his great disappointment; perhaps it was the sense of nothing left in this life to live for; but at any rate, he grew thin and weak, and lost heart for his work, in a way that was unusual with so vigorous a sailor. The skipper as he looked at him thought Willoughby wouldn't ever be fit for another sealing voyage—thought it in that hard, purely objective way that is habitual to skippers in dealing with seamen. And Arnold Willoughby himself began to recognise the fact that he was growing ill and worn with these continued hardships. Life had been a failure for him. His day was over. He was one of those, he feared, who must go to the wall in the ceaseless struggle for life which nature imposes upon us.

But at any rate he would go to the wall like a man; he would live or die on his own poor earnings. He never went back for a moment upon the principles he had established for himself in early manhood. From the day when he saw his cousin Algy's claim admitted in full by the House of Lords, he considered himself as nothing more than Arnold Wil-

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loughby, an able-bodied seaman—and not even that now, as things were taking him. Yet he was himself for all that. Even though you go sealing on the Greenland coasts, you can't quite get rid of the cultivated habits and tastes of a gentleman. Arnold Willoughby, for his part, never desired to get rid of them. He loved the things of the mind in spite of everything. During his earlier years of apprenticeship to the perils of the sea, he had yearned for art; now he had given up art for the moment, he took in its place literature. The sailors in the fo'c'sle of the *Sheriff Ivory* of Dundee were much amused from time to time at Willoughby's rummy way of writing at odd moments in a pocket-book he kept by him; and indeed at all spare hours he was engaged by himself in a curious piece of work whose meaning and import the average mariner's mind could hardly fathom. He was deciphering and translating the Elizabethan English sailor's manuscript which he had picked up by accident in the little shop at Venice.

He did it merely to please himself; and therefore he was able to spend a great deal more time and trouble over doing it to perfection than he could possibly have spent if he were one of the miserable drudges who live by the professional pursuit of letters under our hard-faced *régime*. He translated it carefully, lovingly, laboriously. Day after day in his spare moments he took out a page at a time, and transcribed and Englished it with studious pains in his little pocket note-book. For two seasons he had gone on with this amateur authorship, if such it might be called; and towards the end of the second, he had pretty fairly finished his allotted taskwork.

But the fo'c'sle of a sealer in full pursuit of oil is by no means an ideal place for literary composition. Many a time and oft Arnold was interrupted by rude pleasantries or angry calls; many a time he was delayed by the impossibility of finding room for a few minutes' work even on so humble a basis. At last, one afternoon, towards the close of the sealing season, he was told off with a dozen other men for a run in a boat down the ice-bound coast in search of fresh sealing-grounds. His party were on the lookout for Greenland seals, which usually bask and flounder in the sun on the blocks in ice-floes; and they had rowed to a considerable distance from their ship without perceiving any 'fish,' as the sealers call them. Their road lay through a floating mass of blue crystalline ice-blocks. At last, the pack grew too thick for them to penetrate any farther, and the bo'sun in charge, blowing his whistle from the stern, gave the word to return to the *Sheriff Ivory*. They rowed back again about half a knot, in full sight of their ship, when it became gradually apparent that they were becoming surrounded by icebergs. A change in the wind brought them along unexpectedly. One after another, the great white mountains loomed up and approached them from all sides, apparently sailing in every direction at once, though really of course only veering with the breeze from different quarters in the same general direction. The bo'sun looked at them with some dislike. 'Ah don't care for bergs,'

he said in his thick Sunderland dialect. 'Tha've got naw pilot aboard.' And indeed the icebergs seemed to be drifting in every direction, hither and thither at random, without much trace of a rudder. Closer and closer they drew, those huge glacial islands, two large ones in particular almost blocking the way to the ship in front of them. The bo'sun looked at them again. 'Toorn her aboot, boys,' he said once more in a very decided way. 'Easy all, bow-side: row like blazes, you oother uns! Ah'm thinkin' we'll naw be able to break through them by that quarter.'

The men turned the boat instantly in obedience to his word, and began rowing for their lives in the opposite direction. It was away from the ship; but in their present strait, the first thing to be thought of was avoiding the pressing danger from the icebergs at all hazards. By-and-by the bo'sun spoke again. 'Ah'm thinkin',' he said slowly, 'tha're toornin' themselves this way, mates.'

Arnold Willoughby glanced round. It was only too true. The icebergs, which were two enormous blocks of white shimmering crystal, half a mile or more in length, had shifted their course somewhat, and were now coming together, apparently both behind and in front of them. The boat lay helpless in a narrow channel of blue water between the high walls of ice that glistened in the sun like chalk cliffs in August. At the rate the bergs were moving, it would take only some ten or twelve minutes for them to shock and shiver against one another's sides. The prospect was appalling. Human arms could hardly carry the boat free of their point of contact before they finally collided. In that moment of danger, not a word was spoken. Every man saw the peril for himself at once, and bent forward to the long sweeps with terrible intensity of energy. Meanwhile, those vast moving islands of ice came resistlessly on, now sailing ahead for a moment before a gust of wind, now halting and veering again with some slight change in the breeze. Yet on the whole, they drew steadily nearer and nearer, till at last, Arnold Willoughby, looking up, saw the green crystal mountains rising almost sheer above their heads to the terrific height of several hundred feet like huge cliffs of alabaster.

'Noo, look oot, boys,' the bo'sun cried in a solemn voice of warning. 'Tha'll strike afore long.' And every eye in the boat was fixed at once, as he spoke, on the approaching monsters.

Scarcely room was left between them for the boat to pass out; and she was still many yards from the point where the blue channel between the bergs began to widen again. A sort of isthmus of water, a narrow open strait, intervened between them and the wider part of the interval. Two clashing capes of ice obstructed it. On and on came the great mountains of glistening white crystal, tall, terrible, beautiful, in irresistible energy. The men crouched and covered. Arnold Willoughby knew their last moment had come. There was no way out of it now. In another second the bergs would crash together with a thunder of the sea; their

little cockboat would be shivered to fragments before the mighty masses of the jarring ice-mountains; and they themselves, mere atoms, would be crushed to a pulp as instantly and unconsciously as an ant is crushed under the wheel of a carriage. Not a man tried to pull another stroke at the oars. Every eye was riveted on the horrible moving deaths. Their arms were as if paralysed. They could but look and look, awaiting their end in speechless terror.

At that awful moment, just before the unconscious masses struck and shivered into pieces, a flood of strange thought broke at once over Arnold Willoughby's mind. And it summed itself up in the thousandfold repetition of the one word, Kathleen, Kathleen, Kathleen, Kathleen.

He thought it over and over again, in a sudden agony of penitence. With a rush, it burst in upon him that he had done wrong, grievously wrong, to be so hasty and impulsive. What misery he might have caused her! what injury he might have inflicted! After all, no man can ever be quite certain even in his interpretation of the most seemingly irresistible facts. What wrong he might have done her, ah, Heaven, now irrevocable! Irrevocable! Irrevocable! For the mighty masses of ice stood above them like precipices on the brink of falling; and in one second more they would shock together—

Crash! Crash! Crash! Even before he had finished thinking it, a noise like thunder, or the loud rumble of an earthquake, deafened their ears with its roar, redoubled and ingeminated. The bergs had met and clashed together in very truth, and all nature seemed to clash with them. A horrible boiling and seething of the water around them! A fearful shower of ice shot upon them by tons! And then, just before Arnold Willoughby closed his eyes and ceased to think or feel, he was dimly aware of some huge body from above crushing and mangling him helplessly. Pains darted through him with fierce spasms; and then all was silence.

Half an hour passed away before Arnold, lying stiff, was again conscious of anything. By that time he opened his eyes, and heard a voice saying gruffly: 'Why, Willoughby ain't killed neither! He's a-lookin' about him.'

At sound of the voice, which came from one of his fellow-sailors, Arnold strove to raise himself on his arm. As he did so, another terrible shoot of pain made him drop down again, half unconscious. It occurred to him dimly that his arm must be broken. Beyond that he knew nothing, and he lay there long, nobody taking for the time any further notice of him.

When he opened his eyes a second time he could see very well why. They were still surrounded by whole regiments of icebergs, and the remaining valid men of the crew were still rowing for dear life to get clear of the danger. But one other man lay worse crushed than himself, a mangled mass of clotted blood and torn rags of clothes, at the bottom of the boat; while a second one, by his side, still alive, but barely that, groaned horribly at intervals in the throes of deadly agony.

Arnold lay back once more, quite passive all the while as to whether they escaped or were engulfed. He was weak and faint with pain; and so far as he thought of anything at all, thought merely in a dim way that he would like to live if only for one thing—to see Kathleen Hesslegrave.

Hours passed before he knew what had really happened. It was a curious accident. An iceberg is a huge floating mass of ice, only an insignificant part of which shows visibly above water. The vastly greater portion is submerged and unsuspected. It is impossible, of course, to guess at the shape of this submerged part, any more than one could guess at the shape of the submerged part of a piece of ice as it bobs up and down in a glass by observation of the bit that protrudes above the water. These particular icebergs, however, had such exceptionally sheer and perpendicular sides that they looked like huge fragments of an extended ice-field, broken off laterally; they seemed to show that the submerged portion was flush with the cliffs they exhibited above water. Had that been quite so, Arnold Willoughby's boat could never have escaped complete destruction. It would have been stove in and crushed between the great colliding walls like a nut under a steam-hammer. But as it happened, the submerged block was slightly larger in that direction than the visible portion; and the bergs thus crashed together for the most part under water, causing a commotion and eddy which very nearly succeeded in swamping the boat, and which rendered rowing for a minute or two wholly impossible. At the same time, a projecting pinnacle that jutted out above from the face of the cliff came in contact with another part of the opposing iceberg, and, shivering into fragments a hundred yards away from them, broke up with such force that many of its shattered pieces were hurled into the boat, which they, too, threatened to swamp, but which fortunately resisted by the mere elasticity of the water about them.

For a minute or two, all on board had been tumult and confusion. It was impossible for those who were less seriously hurt to decide offhand upon the magnitude of the disaster, or to tell whether the bergs, recoiling with the shock, might not wheel and collide again, or lose balance and careen, sucking them under as they went with the resulting eddy. As a matter of fact, however, the collision, which had been little more than a mere sideward gliding, like the kiss of a billiard ball, was by no means a serious one. The two moving mountains just touched and glanced off, ricocheting, as it were, and leaving the boat free in a moment to proceed upon her course. But as soon as the bosun could collect his wits and his men for a final effort, he found that one was dead; while two more, including Arnold Willoughby, lay wounded and senseless at the bottom of the gig, whether actually dead or only dying they knew not.

Summing up all their remaining nerve, the uninjured men seized their oars once more, and rowed for dear life in the direction of the open. It was half an hour or so before they



could consider themselves at all clear of the ice; and even then they had no idea of the distance from the ship, for the *Sheriff Ivory* herself could nowhere be sighted. For hours they rowed on helplessly over the trackless waves; it was dark before they sighted the missing ship in front of them. By the time they had reached it, Arnold Willoughby, now faint and half unconscious with cold and exposure, hardly realised as yet the full extent of his injuries.

But when next morning he woke again in his bunk after a night of semi-unconsciousness, he discovered that his arm was really broken, and, worse still, that his right hand was so crushed and maimed as to be almost useless.

The voyage back to Dundee was for Arnold a terrible one. He lay most of the time in his hammock, for he was now useless as a 'hand;' and his arm, clumsily set by the mate and the bo'sun, gave him a great deal of trouble in the small hours of the morning. Moreover, his outlook for the future was exceedingly doubtful. It was clear he would never again be fit to go to sea; while the damage to his hand, which he feared was irrevocable, would make it impossible for him to return to the trade of painter. Whither to turn for a living when he reached home again, he knew not. Nay, even the desire to see Kathleen again, which had come over him so fiercely when he sat under the shadow of the impending iceberg, grew much feebler and fainter now that he felt how impossible it would be for him in future ever to provide for her livelihood. More than at any previous time, the self-deposed Earl began to realise to himself what a failure he had proved on equal terms with his fellow-man in the struggle for existence.

Yet even if you are a failure, it is something to accept your position bravely; and Arnold Willoughby always accepted his own like a man with that cheery pessimism which is almost characteristic of his caste in England.

(To be continued.)

#### THE IDENTIFICATION OF HABITUAL CRIMINALS.

It is said that if we had more perfect means of identifying Habitual Criminals, their comparative fewness would excite surprise, and the desirability of possessing such means has for a long time been felt by everybody connected with the detection of crime or the administration of justice. If there were no large centres of population, and criminals confined their operations to their native districts, the matter would be simple; but personal knowledge on the part of London, Glasgow, or Birmingham police of all of the habitual law-breakers in their cities is impossible, especially as these people are generally nomads.

Efforts have been made in this country from time to time to reduce identification to a system. First, we have the Habitual Criminals Register, established by Parliament some twenty-five years ago, and kept at the Home Office with its supplement, the Register of Distinctive Marks. The first-named contains in alphabetical order the names of all persons twice

convicted of *crime*, a term including any felony, and such misdemeanours as complicity in coin-ing or burglary, and obtaining money by false pretences. It also contains a history and personal description of each person. The title of the supplementary record explains its nature. It has nine main divisions for the different parts of the body, and subdivisions arranged according to the nature of the marks; and when by its aid a clue to identity is obtained, confirmation is sought in the description supplied by the alphabetical register. Great care is taken in the preparation of these records, copies of which are annually distributed to the various police forces of England; yet they appear to be of little use. Several explanations are suggested, but we need only mention one—the rarity of really distinctive marks. Photography, too, has proved a deceptive agent; and the circulated descriptions popularly known as the 'hue-and-cry' leave much to be desired in the way of exactness. One other method is pursued in London and some other large towns—the reviewing of prisoners by police and warders; but the benefits obtained are not at all commensurate with the loss of time involved. In brief, then, our present system is cumbersome and unreliable, sometimes causing undesired suffering, and more often allowing the guilty to escape.

In these circumstances the public will welcome the intimation that a Committee appointed by the Home Secretary has recommended a practically complete change in the existing methods of identification. The evidence received by that body and the conclusions it arrived at are of a highly interesting character. The points referred to it were (1) The merits of our present system; (2) Those of the anthropometric, or Bertillon, system and 'finger-print' system, separately or in combination; and (3) Whether new methods should replace or only supplement existing ones.

Bertillonage, as the system of measurement invented by M. Alphonse Bertillon is called, has lately received a good deal of attention in British and foreign periodicals, and been adopted for detective purposes in many countries. It was submitted to the Prefect of Police at Paris in 1879, and introduced by him in 1882. In 1883, 49 old offenders were recognised through its agency; in the following year, 241; and in 1892, 680. At Lyons and Marseilles, anthropometrical registers have been established; several other large towns in France are about to follow the example, and the police of the rural districts frequently seek M. Bertillon's aid. In several countries of Europe, the system has been adopted, though mainly in connection with foreign offenders; it has for two years been working satisfactorily in Bengal and Ceylon, and will soon be in operation all over India; in the States and Canada several prison governors are working it independently, and these affirm that only central control is requisite to its complete success.

The subject having already been treated in this *Journal* (No. 391, June 27, 1891), a detailed description of Bertillonage is not needed here; but of the classification a little may be said. Let the reader imagine the side of a room

occupied with pigeon-holes. First, these are divided vertically into three parts, for long, medium, and short heads; and then horizontally also into three parts, for broad, medium, and narrow heads. These nine divisions are made twenty-seven by the classification of fingers (long, medium, and short), eighty-one by the foot measurements, and two hundred and forty-three by those of the forearm. M. Bertillon has other dimensions; but we have said enough to show that the division may be made as minute as one pleases, and that it secures scientific accuracy in identification, the two main facts on which it is based being established beyond question—namely, that no two persons are in all their dimensions alike, and that the bony structure of the adult body never varies. It is worth remarking that the Bertillon system has not escaped criticism. Unless perfect accuracy be observed in taking the measurements, the system would only be a snare; and lack of care or intelligence is an ever-present danger if the task be committed—as it sometimes must—to warders and police of perhaps doubtful zeal, or who have had no experience. Then, a prolonged search, and with dubious results, would be rendered necessary when measurements were on or near the margin of the primary divisions. In theory, however, the system is perfect. Now, let us see the Bertillon system at work, looking through the eyes of Sir Richard Webster, the late Attorney-general. He visited M. Bertillon's office with his successor, Sir Charles Russell, and the following case came under his notice. A man was brought in who gave what afterwards proved to be a false name, and said that he had never been charged before. Eight measurements were taken, and guided by these, the English lawyers selected a certain card from M. Bertillon's cabinet. This bore a name differing from the one given, as well as a photograph which Sir Richard thought unlike the prisoner. But it also bore a record of private marks—a scar of such a kind on such a finger, and a tattooed anchor an inch long on the posterior side of the left arm. These marks were found on the prisoner. He was obviously the man indicated; and it is a remarkable fact that these inexperienced visitors selected the right card in four minutes from among ninety thousand.

Mr Francis Galton is a well-known anthropologist, who some years ago took up the question of finger-prints from the point of view of heredity and racial distinctions, and subsequently studied it with relation to personal identity. Sir William Herschel noticed the significance of these prints many years ago; but it was Mr Galton who first carried investigations so far as to warrant positive deductions, and he has a marvellous statement to make. The papillary ridges, or lines on the hand, form at the finger-tips a distinct pattern of one of three broad classes: the 'arch,' in which the lines run from side to side of the bulb without making any turn or twist; the 'loop,' which shows a single backward turn; and the 'whorl,' consisting of a duplex spiral, or at least one circle. There are numberless variations of each pattern, which also generally varies on the different fingers; and though there is a remote

chance that the ridges on one finger may be similar with two persons, there is no chance whatever of absolute identity if ten or even five fingers (Mr Galton says two) be in question. Moreover, the lines of infancy are the lines of old age, and they are not to be altered either by manual labour or by scars. Once Mr Galton found that time effected a change, a ridge which bifurcated at the age of two and a half having become united at fifteen. But this exception does not injure his theory, of the correctness of which he has overwhelming testimony. He has examined the fingers of oakum-pickers and of labourers of every kind, has received finger-prints of many races; and compared those of childhood and youth, of maturity and old age; and with a lapse of fourteen years between prints of the same person's fingers, he can point out one hundred and eleven coincidences! Mr Galton's system has some advantages over M. Bertillon's. To take finger-prints is a much simpler process than to take several measurements, and the task might be confidently entrusted to anybody. In Bertillonage, too, there is a risk of error, though it be small; but there is no possibility of it with Mr Galton's system if—and this is the stumbling-block—the collection of cards be small. Did the patterns occur indiscriminately, we might readily classify over one hundred thousand imprints; but unfortunately they do not, the arch and its variations being comparatively rare; while other patterns are common, and have a knack of being similar on all ten fingers. In twenty-six hundred cards a considerable number of patterns appeared but once; but each of twelve others appeared twenty-six times; and one, one hundred and sixty-four times. This is fatal to total dependence on the Galton scheme. The scientist himself in his laboratory with lens and pantagraph can point out peculiarities in every specimen; but for police purposes these fine distinctions would be useless. The Galton system, therefore, cannot be adopted as the sole basis of identification; nor does the Committee which has been investigating the subject recommend that the Bertillon should. That body thinks that, however complete the classification, the vastness of the number of measurements requisite would in England, as it will in France, in time cause difficulty; and reference is made to the greater power over prisoners enjoyed by the French police—a consideration of importance.

The partial adoption of each system is, however, recommended, and the grafting of the combination on the existing English system, of which, it is hoped, time may permit the abolition. As it is highly probable that the Committee's suggestions will in the main be accepted, it is worth while to summarise them. Before prisoners were discharged, they would be photographed. In France, two distinct portraits are taken on the same plate, and the ear and nose are thus clearly shown. We, however, use a mirror for the side-face, and the practice is to be continued. Then would follow the taking of five measurements, which is fewer than M. Bertillon requires—the length and width of the head, and the length of the left middle finger, left forearm, and left foot. These dimensions

would be shown in millimetres. The third step would be to take the finger-prints, which would appear on the back of a card twelve inches by five; the front containing the other details mentioned, as well as the particulars now supplied by the Habitual Criminals and Distinctive Marks Registers, and a copy of the prisoner's photograph. This card would then be placed in a cabinet provided with a mechanical contrivance devised by Mr Galton for rendering an error in sorting impossible. Two or three incidental points may be referred to. In Bengal, M. Bertillon's figures for, say, broad, medium, and narrow heads were found unsuitable; and Dr Garson, of the Anthropological Institute, asserts that they also would be so in this country, and that lower limits would be necessary. It is also proposed that a separate cabinet for females should be at once established; and later on, when cards have become numerous, that for males divided into two parts, according to age. The issue of regulations for measuring and photographing untried prisoners is suggested. This would be a serious innovation; but the Home Secretary is empowered to do so by the Penal Servitude Act, 1891; and precautions against abuse might easily be taken. In the first place, the rules would have to be laid before Parliament; and the Committee suggests that a magistrate's or prison-visitor's order should first be obtained; and in the event of the prisoner's acquittal, the photograph be destroyed. The power, too, would only be exercised if the prisoner's antecedents were unknown.

Such is an outline of the scheme recommended by an influential Committee of experts, after mature deliberation and hearing a mass of evidence from specialists—the chiefs of some dozen police forces, prison governors, lawyers, and scientists. That it would be an improvement upon the existing system does not admit of doubt; and if gradually introduced, as suggested, first in the metropolis, and afterwards in the other great towns and in the country districts, and heartily taken up by the various officials entrusted with its working, the more dangerous criminals would have better supervision, and administrators of justice be enabled more accurately to discriminate between the habitual and the casual offender.

## OSKAMULL.

### CHAPTER II.—CONCLUSION.

THE dance was at its height. Young men and maidens uttered no sound, save for an occasional whoop from the bass of manly lungs during the reel, and, as is the way with the rustic Scotch, kept their emotions to themselves. Directly a dance is at an end, the youth makes a stiff bow to his partner, and leaves her standing where the music left her. She finds a seat for herself, or waits until the music strikes up again, when, if she is in demand, or partners plentiful, another youth will formally salute her, speaking no word. And so the evening goes on. With the supper, tongues unloose a little.

'You're eating naething, Nannie.'

'I'm doing fine, Jock.'

'Hoots; you're ower slack; shove in your plate.'

'I'll try a bit jelly, then.'

A little lower down the table, a man with a heavy, melancholy face, known to have leanings towards the ministry, which, however, have to remain at that, owing to a succession of bad harvests on the paternal farm, looks sheepishly at his partner, then at her gown. 'Green's a bonnie colour, Leezie.'

'Do you think so, Duncan?'

'Ay; I do that, Leezie; for it's the colour our Maker's chosen to cover the fields and the trees and the hills, and bound to be the bonniest.'

Leezie, a plump-faced, saucy girl, with ruddy cheeks, preternaturally heightened by the dancing, looks up at him coyly. 'You may be right as to the fields and the trees, Duncan; but, to my way of thinking, the hills are different, specially now when the heather's in bloom.'

Duncan anxiously breaks the bit of bread beside his plate, and mutters: 'That's true, Leezie—that's true.'

Well up the middle table, supposed to be reserved for the *élite*, sits Alec; beside him fat, portly Mrs Beeton, resplendent in crimson silk, her ample bosom surmounted by a large breast-plate-like brooch, incasing the hair of the departed Beeton. She is speaking to Alec in confidential whispers, giving the history of each dish within recognisable distance. 'The butter them puddings took, and all of the best—fresh as fresh! "Spare nothing, Mistress Beeton," says the Laird; "it's not every day a wedding comes our way."'

Alec's attention flags; perhaps hunger appeased, the dishes no longer interest him; but more, perhaps, because all the evening he had missed a little figure, which his conscience would not let him forget. He had sounded Mrs Mackenzie, skilfully leading up to his point, but could get no satisfactory information. Just before the hour of starting, the children had run over to say, 'Sister was sorry; but she couldn't go to the ball, and not to wait for her.' The little things were off before she could question them further. Alec tried to forget her in the dance; and when that was unavailing, had recourse to the bottle, taking rather more whisky than was wise. A heartache in hand is apt to ignore the prospect of a headache on the morrow.

But to go back to Ailie. After Alec left her, she set about getting the tea ready in a mechanical sort of a way; it didn't occur to her to neglect any of her duties because she was unhappy. Her father had gone by coach to the neighbouring town, some nine miles distant, for payment of an account due to him, and to buy some leather. He would walk back, and promised to be early—in time for tea. She had a little potatoe pie browning for him in front of the fire. Everything was ready, only her own simple toilet to make. Five o'clock came, six o'clock, and no father. She grew frightened. If the money was spent, there would be nothing to go on with, and there was only just enough meal in the house for to-morrow's breakfast. She tried not to think of the 'inns' he would have to pass, nor of his weakness in resisting temptation. She would give the children their

supper, and then dress herself. Half an hour later, as she shook out the tartan shawl in readiness to put on, there came a burst at the door—a sound the meaning of which she knew only too well; it was her father, in the maudlin, happy stage, the precursor of worse, as experience had taught her. She gave him some tea, and tried to persuade him to go to bed, in order to secure what was left of the money. For answer he stupidly laughed in her face, then made for the door. He had forgotten all about the ball, and could tell her nothing about the leather. It ended as it had often done before. In the morning, Ailie had an ugly bruise across her cheek. The poor little children's breakfast, the steaming hot porridge, lay a trampled, dirty mass outside the cottage door, the father followed it, and his daughter prayed he might land in the police cell before further damage was done.

A couple of hours after, Gavin was dusting boots and shoes in the front shop, when a sorry little trio presented themselves at the door: Ailie with a shawl over her head, and keeping only one side of her face towards him; with her the children, blue with cold, for the weather had changed, and there was a nasty drizzling rain. 'Please, Mr Maclean,' she faltered, 'I wasn't able to go to the ball last night; and I thought perhaps you wouldn't mind taking back the shoes, seeing I sha'n't need them more?' In her eagerness, she turned her white, earnest, little face full towards him, showing the great bruise on the cheek. His heart was full; he couldn't speak. Silently he laid five shillings on the counter, and she thought he was displeased about having to take the shoes back. She stretched out her hand for the money—two shining half-crowns. What would they not buy for the little sisters! milk and bread and nourishing foods. Then her face flushed, and she pushed one of the pieces towards him, saying, 'They were only half-a-crown, sir.'

'Bless me! so they were,' he said, vigorously dusting the counter.

They were almost out of the shop, when he found his natural voice again, and called them back. 'Have you time to stop a moment? My sister would like to see the little ones.' He went to the inner door and called 'Sarah.' A woman appeared. She was deformed. The head was placed upon the square high shoulders, as if the neck had been forgotten. She had a twisted hip, and moved in a sidelong manner. The face was plain and homely, but redeemed from positive ugliness by a pair of beautiful gray eyes. She took in the situation at once; yet, as if asking a favour, she begged to be allowed to have the little ones in the parlour. They were soon placed upon high chairs there, dangling their little legs in front of the kindly blaze, in their hands huge slices of bread and jam.

'It's too early to offer you anything,' she said to Ailie; 'but perhaps you'd fancy a cup of tea this raw morning?'

Ailie had tasted nothing; but she felt as if a bit of food or drop of drink would choke her. A minute more and she would break down. She could only manage to say: 'May I

leave the bairns for a few minutes till I go to the merchant's?'

Soon the warmth and the food unloosed the little tongues. 'We're having our breakfasts now,' piped the younger child. 'Father spilled the porridge; but bread and jam's nicer nor porridge.'

Gavin stood near. The curious lump was still in his throat. 'Poor bairn, poor bairn,' he muttered; but it was of the sister buying bits of things with her half-crown he thought. Already it was through the village that the cobbler had 'been at it again,' but had somehow evaded the policeman, and was nowhere to be found.

When Ailie returned to the shop, she heard half-suppressed little squeals of delight from the children; the deformed girl was putting small parcels into a basket, and as each additional package was added, the children expressed their approval.

'It's biscuits now, Ailie,' they greeted her with. All the way home they kept up their happy little ripple, only, as they neared the cottage, it ceased—'father' might be there.

But there was no father either in the house or in the police cell; instead, he lay in the Cottage Hospital with a broken leg and internal injury. As Ailie was putting the children to bed that evening, a neighbour came to the door with the news that their father had met with an accident. He had been found at the foot of the cliffs—had probably lain there since morning. He was delirious when they found him, and it was no use his daughter going to see him, he would not know her.

With the morning, consciousness returned, and a message from the Hospital to say Ailie might see him—he was asking for her. The Hospital was a little bit of a place; for the neighbourhood was a healthy one, and sickness such as could not be done for at home seldom came. But in the casualty ward there were generally several cases; just now the cobbler's happened to be the only one. When his daughter arrived, he knew her at once, and called her by her name; but his face shocked her. It seemed to have shrunk to half its usual size—pinched and white, and all the bloated look gone out of it. The nurse drew aside and left father and daughter together.

'Ailie,' he said, 'I'm going—going fast. There's no pain now, only a weakness, and a sinking such as I can't mistake. I've been a bad father to your poor bairns, and there's nought put past for you; but you can work your way. It's the children I'm thinking of; and how am I to meet their mother, and tell her the workhouse is to be their home?' With the last words his voice rose to a sort of hoarse shriek.

The nurse came and tried to soothe him. She was a motherly, matter-of-fact sort of body. 'Don't take on so, poor fellow—something will cast up for the bairns.'

'Yes, father, don't fret,' said Ailie. 'I'll work my fingers to the bone before they shall go to the House.'

'Words, words—idle words,' he screamed. 'Tell me how I'll meet their mother, and them unprovided for?'



'Ay, ay,' he went on, calming down, 'that's true; she was a good-living woman, an awfu' good-living woman'—All the excitement had left his voice; it dropped to a despairing whisper. The nurse sent Ailie away, as her presence seemed only to excite him.

Tears blinded her as she made her way back to the cottage, choosing the path across the fields, so as to avoid meeting any one. As she lifted the latch, she heard some one talking to the children. It was Gavin.

'I thought I would have been in time to catch you before you went to the Hospital,' he said; 'and when I found you gone, I just waited on.'

'You're welcome,' she answered; 'it's not much longer I'll be able to say as much, nor where my next roof may be.'

'It's a bad business, Ailie, a bad business.'

'Ay,' she sobbed; 'and death's fearsome any time; but with him it's past thinking of. He's fretting terrible about us, and no preparing for his end.'

Then the great uncouth fellow got up and bent over her, his voice gentle as a woman's. 'Ailie, it just rests with yourself. There's a home up the street waiting for you, and a sister—though a poor deformed one—that will be a mother to the little ones. Will you think on it, Ailie? I've no turn for speaking; but there's times and seasons when actions mean more than words, and it's then you'll not find me wanting.'

She rubbed her face up and down the sleeve of his rough, frieze coat, as if its touch gave her comfort. 'I'm sore tempted, Gavin—sore tempted to take advantage of your kindness; but it doesna' seem fair, for I never knew your value till now; and will only be a drag on you.'

'You'll be a willing load to me, Ailie—such a load as I've hoped and prayed for, for many a day.'

In the manager's sitting-room, a hard fight was going on betwixt a man and his conscience. All the softer part of his nature cried out to soothe and comfort the poor half-distracted girl at the cottage—to tell her that although she was losing the only support she had ever known, the poor weak creature who took the place of father—yet, that there was another and a stronger protector waiting for her, and to have no dread as to the future.

He could imagine how she would look—he had pictured it often. But he was a canny Scot, and his mother's blood did not run in his veins for nothing. He compromised with his conscience. He would interview Ailie now, and not commit himself one way or the other. He would bid her not to fret about the future, without holding out any definite settlement. When he arrived at the cottage, Ailie and the children were just leaving it. They were on their way to the Hospital to say good-bye to their father. She did not ask him in, although he looked at her with the same eyes which formerly had wrought such havoc. They were powerless to affect her now; for she had passed through such trouble; and a lifetime of misery seemed to loom before her, until Gavin set her fears at rest. Now there seemed only room for

gratitude in her heart—any romance she had felt for Alec was dead for ever. She looked him calmly in the face whilst he went through the customary speeches of condolence. She was more worn and paler looking than when he saw her last, and when there had been no ugly bruise upon her cheek; but now there was a new dignity about her—she seemed to have grown apart from him—to be no longer the old Ailie that he knew. He asked quite humbly if she could spare him a moment indoors.

'I'm sorry there's no time, Alec; we're hurrying away to the Hospital. They've sent for us. Father's going fast; and I thought, maybe, he'd die easier if he knew me and the bairns were provided for, and that he could tell mother we're going back to where she left us.'

### THE MONTH:

#### SCIENCE AND ARTS.

FOREMOST among the dangers of ocean travel must be numbered the presence of abandoned vessels, or derelicts (see *Chambers's Journal*, Jan. 20, 1894), which often float flush with the surface of the sea, or even a few feet below it, quite out of sight. During the month of March no fewer than forty-one vessels reported having sighted derelicts in the Atlantic; and it is hardly too much to suppose that many a good ship which has sailed from port and never been heard of again has been wrecked by collision with these floating obstructions. It is now proposed that some international action should be taken to clear away these dangers to navigation—to tow them into port if they have any salvage value, or to blow them to pieces if they will not pay for removal in any other way. The Commissioner of Navigation at Washington has drawn up the draft of an international agreement, and this document has been circulated among the various nations interested. It suggests that Great Britain and the United States should provide two vessels each, and the other nations one vessel, and that these should be available for help to ships in distress, and should also busy themselves in the removal and destruction of derelicts.

It is well known that proximity to telegraphic and telephonic apparatus is dangerous during a thunder-storm, and many accidents have happened from this cause. Mr W. H. Soulbly of Rochdale gives to a contemporary a very graphic description of what he observed in his own office during a thunder-storm which occurred on March 30th last. Every flash, he says, 'rattled the platinum connection against the diaphragm of the transmitter, lighting up the latter, and ringing the bell.' Then sparks passed from the receiver, hanging up upon its hook, to the transmitter with a sharp, crackling sound. When the storm was at its height, a tremendous flash occurred, sending a shower of sparks from receiver to transmitter, and to the several metallic parts of the telephone, such as must have proved fatal to the hearing if not to the life of any one holding the instrument to his ear.

A prize of twenty pounds has been offered by the Academy of Sciences of Rouen for a

new method of accurately recording very high temperatures, or for an improvement upon the systems already in use.

The importation of tropical fruits to this country has increased largely of late years, and has obtained fresh impetus since 1886, the year of the Indian and Colonial Exhibition in London. But it is considered by those who have studied the subject that there are yet many fruits quite unknown to Britain which might with advantage be imported here, either in their fresh condition or in syrup, like the pine-apples which already reach our shores in such vast quantities. One of these is the rose-apple or jambosa, a small Indian tree, which is cultivated in many tropical countries, bearing a small pear-shaped fruit with a rose-like flavour. There are also the mango and the delicious litchi, besides many other fruits well known to travellers, which might well form the subject of experimental importation. South Africa also furnishes fruits, notably the kei apple, and the amatungla or Natal plum. Many of these fruits if attainable here during the winter season would be greatly valued, and their importation would be likely to well repay enterprise in this direction. Our remarks are suggested by an article in the *Society of Arts Journal*.

Mr Alfred Harvey makes an interesting communication to the Astronomical and Physical Society of Toronto concerning the height of a widely observed aurora which occurred on July 15th last. This aurora was seen as a magnificent arch of light, which, after lasting several minutes, broke up and soon vanished. The exact position of the arch was noted by Mr Harvey at Toronto; and by a fortunate coincidence, its breaking up was observed by Mr G. E. Lumsden at Bala, one hundred and ten miles north of Toronto. By a comparison of these observations, it was found that the perpendicular height of the arch was one hundred and sixty-six miles, its breadth fifteen miles; and supposing that it maintained an equal height about the earth, the two extremities of the arch must have been separated by a space of two thousand three hundred miles.

A curious new industry is represented by the introduction in France of what is called Soap-paper. These papers are about the size of ordinary visiting-cards, and a few can be carried in a pocket-book without inconvenience. They are intended for the use of travellers, soap being a thing which is not commonly provided at Continental hotels, as it is in those of Britain. The soap-paper is made by immersing a strip of unsized paper in a bath of cocoa-nut-oil soap of good quality, as generally prepared for toilet purposes, after which the strip is passed between rollers, cut into squares, and stamped in any manner desired. Each paper square is used once only.

We have received an explanatory circular relating to Colonel Julier's system of smoke-absorption, which, it is said, can be applied to a factory furnace or a kitchen range with very beneficial results. The apparatus consists of an ascending flue made of fire-brick, in which the products of combustion first enter, being helped in their passage by a jet of steam, which

saturates the mineral dust with water-vapour. The smoke-laden gases then enter the descending flue, which is made of steel plates, and which is connected with a tank and drain to carry off the residues. At the top of this last flue is a fine spray of water, by which the soot and dust are precipitated. It is asserted that the filtering of the smoke is so thorough under this system that it is rendered clean, and that a large production of the sulphur compounds from the fuel are arrested. If this method could be so far modified that the chimneys of an entire row of houses could be connected with one apparatus, the problem of smoke-abatement in our towns would be partly solved.

A correspondent of the *Standard* describes an effective method of destroying the rats and mice which find a home in corn-ricks. When the farmer is about to thrash the corn or cart it away, the thatch should be first removed, for under it most of the vermin will be found, and they will jump off and bolt into the rick again. Galvanised iron wire, a yard high, should now be drawn round the rick, so that, when the lower portion is reached, the animals will be unable to get away into the hedgerows and other ricks. After use, the wire-netting can be rolled up and put away for future service. About fifty yards are sufficient to enclose an ordinary stack.

Mr A. M. Keay's new Fire-alarm was shown at a recent conversation at the Royal Institution by means of a model warehouse and miniature fire-station, the two being connected by wires. A spirit-lamp was lighted in one of the little rooms of the warehouse, and in a few seconds a gong at the fire-station commenced ringing. The system employs a very sensitive electrical thermometer, or thermostat, in which a rise of temperature much above the normal causes a bell to ring both at the fire-station and outside the premises in which the instrument is placed, so that a policeman would receive warning of a fire before flames or smoke were apparent. For warehouses and other premises which are left untenanted at night, the method should prove extremely valuable.

The use of ice for domestic purposes has become more of a necessity than a luxury, but it has hitherto possessed two drawbacks. In the first place we have no guarantee of its purity, and it is a known fact that the most transparent ice may be infested with noxious germs; and in the second, it is presented in crude lumps, which are not easily broken up. The patent cube ice-blocks invented by Mr Van der Weyde are free from both objections. The ice is made from distilled water, and is presented in cubes of about one inch. By a well-known natural law, such pieces of ice will adhere together at a low temperature; but when brought into a higher one, can be readily separated. Each block bears a trade-mark, which is a guarantee of its purity, and they have a very attractive appearance when placed on the table. The machinery by which these cubes are cut from a solid block of ice, impressed each with a star—the trade-mark—and reunited into a square mass weighing sixteen or thirty-two pounds, is of the most ingenious construction.

A new method of catching fish has been invented by Mr G. Trouve. A net of circular form, having a purse in its centre, has attached to its margin a flattened india-rubber tube, which is connected with an air-pump on shore or on a boat. The net is weighted, and is sunk in any suitable spot, while fish are attracted to it by bait or by a subaqueous lamp. After a certain time, the pump is set to work; the flattened tube becomes distended with air, and rises to the surface with a motion so silent and gradual that the fish are not frightened or disturbed. The fish being secured, the air is allowed to escape from the tube, the net again sinks, and is soon ready for another haul.

All wood-workers know what an admirable material for several purposes is that yielded by the 'Sequoia gigantea' of California. It is now largely used by organ-builders, not only on account of its fine grain and the ease with which it can be worked, but because of the great breadth of the logs cut from the great tree. A section of the trunk of one of these trees has just been acquired by the British Museum. It has a diameter of more than fifteen feet; and the annual rings, which have been carefully counted by an expert, indicate an age of thirteen hundred and thirty years. It has been pointed out that this tree must have attained a considerable growth when St Augustine introduced Christianity into Great Britain. It is satisfactory to learn that the 'Sequoia' is in no danger of extinction.

Last year there was a pretty general consensus of opinion on the part of London gas consumers that by some occult means their quarterly gas accounts had considerably increased, although to all intents and purposes they were using the same amount of gas as heretofore. Professor Lewes, in a paper recently read before the Society of Arts, on 'London Gas and its Enrichment,' alluded to this matter, and succeeded by certain experiments in tracing its cause. He found that the height of a gas flame depends upon the constituents of the gas, hydrogen giving a very short flame, and methane or marsh-gas a very long one, the flame yielded by carbon monoxide being intermediate between the two. Now it has become customary to use higher retort temperatures at the gas-works, and this increases the amount of hydrogen in the gas; and one of the companies adopts a method of enrichment which again increases the proportion of hydrogen as well as that of carbon monoxide. As a result, Londoners get a gas which yields a short flame, and, by force of habit, they use the biggest flame which they can obtain without reaching the roaring point. They get more light than before this alteration in the composition of the gas, but they have to pay for it. According to Professor Lewes, Londoners would be saved three hundred thousand pounds per annum by the use of unenriched gas; and he asserts that no one would notice the slightest difference in the light emitted by the gas in the burners ordinarily in use; whilst with regenerative burners the difference would be still less.

The Edison-Bell Phonograph Corporation, London, are now supplying phonographs for commercial use, and they inform us that a large

number of English firms as well as private persons are employing the instrument for secretarial work. The rent of a phonograph is ten pounds per annum, and its records can be put, if required, direct into type without the intervention of manuscript.

The wasps last year made sad havoc in the fruit orchards, and the growers have this spring been taking timely precautions against a recurrence of the plague. The early months of the year were dry and warm, and therefore very favourable to the wasps. At this period, if a queen wasp be destroyed, it is equivalent to the extermination of a whole colony later on; and fruit-farmers have been mindful of this fact in placing a price upon the head of every queen wasp brought to them. The system has proved successful, and gardeners and others have in some districts vied with each other in their diligent search after the queens.

The Connelly Motor, which is now being advocated for tramcar service, exhibits a very beautiful application of a principle which, although not new, is not very well known. Power is obtained from an oil or gas engine, and is directly applied to a large and heavy fly-wheel faced with steel, which is kept in motion whether the car is at rest or travelling along the rails. At right angles to this ever-turning fly-wheel is another wheel, which, by means of ingeniously arranged traversing gear, can be moved from the centre to the edge of the fly-wheel. When at the centre, the smaller wheel—which by gearing gives motion to the car—is stationary; but as it is moved towards the edge of the revolving fly-wheel, it partakes of its motion, and moves faster and faster, until the quickly travelling edge of the fly-wheel is reached, when it secures to the car a speed of eight miles an hour. The system has been in successful operation in America, and is on its trial in London. It is claimed for it by its promoters that it is more economical than any other means of locomotion which have been applied to tramcar service.

During a recent six-day bicycle race at New York, a novel method of scoring was adopted, which is said to have been found a great improvement upon the usual system with black-board and movable figures. The track measured one-tenth of a mile in circumference, and therefore ten laps went to the mile. For each rider there was erected a pole, bearing at the top ten incandescent lamps, which could be severally lighted or extinguished at will by an attached shunt in easy reach of the scorer's hand. As the riders completed their laps, their scorers signalled the fact by turning on a lamp—one for each lap—until the tenth was scored, when the lamps were extinguished, and the process repeated.

Notwithstanding the high pitch of perfection to which the 'cycle' manufacture has been carried in this country, our French neighbours seem to be somewhat ahead of us in new applications of this most important aid to locomotion. Boats worked by bicycle gearing are coming into common use, we are told by a French contemporary; and a Frenchman has undertaken, with a combined land-and-water cycle, which he has invented, to make a

journey from Paris to Marseilles on *terra firma*, and to return by water.

English has been spoken in these islands with more or less purity for 1444 years, or longer; in the United States, for a little over 300 years. Yet it is perhaps hardly to be wondered at that Americans have of late waxed exceeding bold in denouncing the Anglicisms or Briticisms of our insular speech as offensive to their more classical ears, and painful to their grammatical consciences. For was not Lindley Murray of Swetara, Pennsylvania, United States, long ago enthroned among us as prince of English grammarians? We trust it was from no disrespect to the memory and the manes of Dr Samuel Johnson (of Lichfield, England), and of John Walker (of Colney Hatch, England), that the English people unhesitatingly accepted as standard authorities on their tongue the great American Dictionaries of Noah Webster and J. E. Worcester. And pending the completion—sometime well into the next millennium—of the great Philological Society's Dictionary, begun in 1879 by Dr J. A. H. Murray, we of this generation have been content to regard the (American) Century Dictionary, edited by Professor W. D. Whitney (New York, 1890-91, six volumes folio, 7076 pages), as the most comprehensive and perfect Dictionary of the English language extant. But ere we have become quite familiar with these ponderous tomes, comes a new American Dictionary of English, claiming in many essentials to surpass the Century. 'The Standard Dictionary of the English Language,' under the general editorship of Dr I. K. Funk, and published by the Funk and Wagnalls Company of New York, is to be complete in two large quarto volumes, closely but clearly printed, with many novel devices of type within and index markings without for finding your word at once. The first volume was published last year, and runs to 1060 pages, with many thousand illustrations. In the part of the alphabet devoted to the letter A, this work contains, instead of the 8358 entries of the big Webster, and the 15,621 entries of the Century, no less than 19,736 'words and phrases recorded under the letter A.' It would be impossible here to indicate the respects in which it differs from the other large dictionaries, or to examine how far it fulfils its promises and justifies its great claims; but a somewhat extended investigation enables us to pronounce the first volume an excellent and valuable book, sure to take a permanent place on the shelves of English libraries.

#### ROMANCE OF A DECK-CHAIR.

SHE was a very proud girl—quite a stand-offish sort of girl, and she came on board with a fixed intention not to speak to anybody. I noticed her while we were yet in the dock at Tilbury. You don't notice individuals as a rule, for everybody looks so like everybody else on a first meeting, especially when it is almost dark, and a crowd of passengers hang about the ship's side taking their last look at

things ashore. But I noticed this lady at the very first. I was on deck, prepared to go with the steamship *Atalanta* to New York City, and I saw her alight from the train some hundred yards distant. I lost her until she stepped upon the gangway, and then I was confirmed in my impression that she was a remarkably handsome girl.

She came on board like a princess, and for some minutes disappeared. Presently I felt a strange sensation. She was positively standing beside me. There was no reason why she should have preferred any other locality, but the fact that she came and stood by the side of me certainly deepened the extraordinary impression she had made. Without presuming to stare at her, I got a glimpse of her fine profile and dark, haughty eyes.

The usual scenes were going on about us. I ventured a remark—foolish and trifling, no doubt, but hardly deserving the contemptuous silence with which it was received.

The last bell sounded; the gangway was withdrawn, and we began to haul out of dock; but still she stood there and made no sign. I plucked up spirit, and asked her if she was going to America—an absurd question, seeing that America was the sole destination of the ship. She turned and looked at me, said nothing, and walked away.

It was a lovely night, and as we dropped down the river the passengers stood about in groups and enjoyed it. Several spoke to me, and became quite sociable. *She* was on deck also until eleven o'clock, but sitting alone, and, so far as I could tell, making no comment upon the mystery of shadows sparkling with lights aloft and ashore which the vessel glided past.

I kept at a respectful distance; but I saw the captain speak to her, and I'm sure he got snubbed for his audacity. So I put it down to pride. I think she made an exception of the stewardess; in fact, I'm sure she did—later on. There is a winning charm about the stewardess to which most ladies yield when a ship gets out to sea.

The next morning Miss Bradley (for that, as I discovered afterwards, was her name) and I met at breakfast. I think all the passengers met at breakfast—at that first breakfast. She was there, anyway, and Fortune seated her at my elbow. I made some progress with Miss Bradley in furnishing her plate. Oh, she was all right at that first breakfast. The sea was like glass, and the sweet morning air in the Channel was very appetising.

But the neighbourly chat with which I tried to garnish the eggs-and-bacon met with little encouragement, and she committed herself no further than to the endorsement of my hope that we should have this sort of thing all the way. By 'this sort of thing' I meant the glorious weather, not her monumental frigidity; but I don't think she took the trouble to analyse my conceptions.

All that day she wandered about the deck,



with her dark eyes—they were dark gray in the sunshine—surveying the panorama of the cliff-belted southern coast, or sat upon a bench by the saloon dome, reading a book under the shadow of the awning which had been rigged up on the 'Promenade.' The splendid lines of her figure showed to advantage in a neat gown of homespun. No one spoke to her; and she spoke to nobody. At dinner I got a trifle forward by the aid of baked potatoes, but nothing to boast about.

There were several jolly women among the passengers; and particularly jolly they were on the score of the calm sea. Our time in the Channel was as good as a picnic, and it seemed as if the prevailing merriment must tantalise Miss Bradley out of her proud reserve. But it didn't.

The next morning, when the steward called me at half-past six for my bath, a breeze had sprung up, and the ship was lifting and rolling in it considerably. The breakfast table was but thinly attended. Miss Bradley, however, came in and took her place beside me. Come, I thought, she's a good sailor. I'll amuse her with some anecdotes about those who are sick at sea.

I supplied her plate, and launched into a funny story. To my dismay, she suddenly arose and left the table—likewise the saloon, ramming her handkerchief into her mouth, as I assumed, to prevent the laughter which must unbend her dignity, and break down the icy barrier between us.

For five days her pride—or some other indisposition—buried her in the sacred seclusion of her state-room. It was too bad! During those five days we staggered through a lively cross-sea, which made walking on deck a very awkward business; and I spent most of my time reclining in my comfortable deck-chair.

It now occurred to a number of passengers that a deck-chair was the thing of all others which they ought to have brought on board. The scanty accommodation of benches was inadequate for those who wanted to lie down at full length and 'sleep it off;' and the deck was not only non-syarbitic, but offered indifferent anchorage: those who made their bed on the floor experienced a constant tendency to slip and slide and roll as the *Atalanta* wrestled with the waves. It would not do.

Envious glances were cast at my snug chair, which I had moored in a sheltered corner. Piratical attacks were made upon that chair whenever I ventured to quit it for a moment. If I took a turn to stretch my limbs, or went below for a book or an extra rug, I never failed to find on my return some interloping loafer ensconced in my nest and pretending to be fast asleep. I stood a good deal of this, and in a noble transport of self-sacrifice wandered about like a lost dog. But I wouldn't stand it any longer. And I didn't.

I began to evict the intruders; at first, with great delicacy: 'Pray, excuse me! I fancy you have mistaken your chair.' Then, with less compunction: 'I regret that I must disturb you; I'm not feeling very well.' And later without ceremony or remorse: 'Now, sir: my chair, if you please!'

It came to this, that I got quite 'rusty,' and acquired the habit of folding up my chair whenever I left it, affixing thereon a notice: 'This Chair was brought on board for the Owner's Use. All others keep away.' This manifesto brought upon me a great deal of chaff. A petition was got up, requesting me to 'take the chair' at a meeting to be held for the purpose of denouncing monopolies. A band of young fools serenaded me with a chorus of 'Chair, boys! Chair! He'll sleep until tomorrow!' and there were other attempts at fun almost as feeble. They kept this up so persistently, that, being out of sorts through the rough weather, and also on account of the prolonged absence of the girl with the dark-gray eyes, I became as surly as a bear.

On the sixth day the sea had gone down a good deal, and the saloon banquets were better patronised. I returned to the deck after a capital luncheon, with one of Clark Russell's stories under my arm; and I filled my big pipe as I meandered in the direction of my chair, intending to enjoy myself thoroughly. Imagine my rage when I found the chair absolutely gone! I rushed up and down the deck until I observed that everybody was bursting with laughter. Suddenly, under the lee of the captain's cabin, I came upon Millicent Bradley. Her proud gray eyes were dim and lustreless. The full firm contour of the face was gone, and her rich complexion had changed to putty-colour. The self-reliant mouth sank at the corners, and was partly open, as if she lacked the vital energy to press her pallid lips together.

As I stopped before her and stared with astonishment and distress, she opened her eyelids just another sixteenth of an inch, and murmured in the most deaway tone: 'Oh, Mr Franklin, I'm afraid I've got your chair. Do take it! Please take it!'

Of course I was instantly at her side, imploring her to keep the blessed chair for ever, to wear it for my sake—not that she showed the slightest disposition to give it up.

For three days I waited upon her hand and foot, helped her up and down the companion-stairs, tempted her with delicacies, told her funny stories—not about sea-sickness—recited poetry to her—my own, unpublished! and—yes, I flirted with her.

And she? Oh, it did her good—brightened her up amazingly. She talked better than a phonograph, and we were all in all to each other. The doctor was a bit of a nuisance, presuming upon his medical privileges, you understand; and the captain pestered us; but I got my grip, as we used to say when I rowed in the College Eight, and I pulled right through, giving them my 'wash' all the time.

And so we drew nearer to Sandy Hook; and although I had to sit upon a camp-stool while I watched over her in my lawful capacity of landlord of the deck-chair, I never enjoyed crossing so much in my life, and I've been over the Atlantic about twenty times on business.

But within a day's sail of New York a disaster fell upon the ship, so terrifying, so

lurid, so indescribably horrible, that you will think me inconsistent in declaring that it increased my happiness a hundredfold, and gave me in one hideous moment all the concentrated joy of a lifetime.

It had come on to blow again. A great bank of bubbling purple clouds had arisen in the north-west as the night closed in; and while I was helping Miss Bradley down the companion-way, driven from the deck by the ugly, threatening aspect of the sky, a blast of wind struck the vessel, heeling her over with a suddenness that forced me to cling with all my might to the banister, and Miss Bradley with all hers to my neck. For nearly a minute my chin reposed against the top of her head, but that ecstasy was vouchsafed to me no longer. As the ship righted, Millicent parted from me, sprang down the few remaining stairs, grabbed at a handrail, and whisked away to her cabin sans adieu.

I struggled back to the deck for the rugs and cushions, and found the vessel enveloped in a furious storm. Already it was dark, and the *Atlanta* was plunging like a restive horse, the sea coming in floods over the bulwarks, and the wind tearing and shrieking among the cordage, and blustering against the big roaring funnel. The rain came down in slanting sheets of water, and the sailors were shouting to each other, and warning the passengers who had delayed getting below. I lost one of my rugs, and how I saved my life I can hardly tell. My deck-chair I left strapped to its moorings, and took refuge in the smoke-room with half-a-dozen other white-faced fellows.

With the greatest difficulty we got to our state-rooms, and I clambered into my berth, simply shedding my topcoat on the floor and kicking off my sopping shoes. I lay on my back with my elbows wedged against the sides of the bunk, to prevent myself being pitched out by the violent rolling of the ship, and listened to the smashing of glass and crockery, the crash of hat-boxes, bags, and other unsecured trifles, which were flying about like pips in a dice-box, and to the shuddering whirl of the screw as the water dropped away from our stern and left the great flanges to beat the air. The steward came and put the lights out, a red-tape proceeding which added to the awfulness of things in general. Then I began to get insufferably warm. It was summer-time, and with portholes closed, the atmosphere below decks was always stuffy; but never before had I felt such an oppression. I concluded that we had got into the Gulf Stream, or something of that sort, and they had closed all the ventilators for the sake of keeping the ship water-tight.

I had to lie there in a bath of perspiration, for I could not get relief by taking off my clothes. To unwedge myself in order to make the attempt would have resulted in my rolling out on to the floor, where my shoes and a water-bottle, and a careless companion's razor-case were having a perfect frolic together.

I grew parched with thirst. Every moment the air became more unbreathable. Ten minutes more, and I gasped aloud: 'I must get out of this, or die!' I flung myself down, taking my

chance of the razors, and groped out of the door. A stifling fog hung in the saloon. The dim light of a swinging lantern showed it me. Peering about me with almost blinded eyes, I perceived that from every state-room abutting on the saloon one or more passengers had crept out like myself, and were standing at each opening like spectres, holding on desperately to anything. The saloon seemed to be doing its best to subvert itself. At times the floor was almost perpendicular. Now I was lying flat upon the outer wall of my cabin; the next instant I was hanging from the rail that ran round it, as if I were a trapeze performer. All about there was a pandemonium of tumbling things. The sea thundered against the vessel fearfully, and again and again there was that horrible shudder of the screw.

Near me clung an old gentleman in night-attire. 'A nice thing this!' he bellowed in my ear. To save discussion, I agreed with him that it was very nice indeed.

Across the saloon was the cabin dedicated to Miss Bradley. I detected a ghostly figure there, and made my way over, holding fast to the chairs and the table. Yes, it was she, white as the dressing gown that swathed her graceful figure. She grasped my hand. Her dark eyes gazed into my face with a terrible expression.

'Thank God, you have come to me!' she cried with passionate earnestness.

We had grown very good friends during those few blissful days of her convalescence, but only by maintaining a rigid barrier of the most respectful ceremony. How I blessed the accommodating tempest which made her now speak to me like that!

I kept her hand in mine and brought my face close to hers—I had to do this to make my consolation intelligible, there was such a racket! 'It's all right!' I shouted. 'Only a gale of wind. Bit of a sea on. You're quite right to turn out if you feel nervous.'

She shook her head. 'Oh, the storm is nothing!' she replied.

'Nothing at all!' I assented scoffingly, as if I had been used to 'high seas and howling winds' from infancy. But in my heart I did not agree with her. She must surely be jesting—making light of it in panic-stricken bravado, else why was she so unmistakably overmastered by fear? Her face was set like marble; her eyes glared to right and left; her beautifully chiselled nostrils sniffed the draught from the engine-room.

As we stood there in the duskiness, clinging to the side of the cabin and to each other, she asked, 'Are you sure there is nothing wrong with the ship—nothing?'

Her tone was so strange that I stared at her for a moment through the smother before asking the counter-question: 'What should there be?'

'What is this smoke?' she whispered hoarsely in my ear. Before I could answer, there was a concussion above as if the very heavens had fallen upon the ship, and we were both dashed off our feet. I fell with my hand upon some metal-work which the carpet did not cover. It was so hot it almost blistered me. I quickly

scrambled up, and lifting the almost fainting girl in both my arms, staggered with her to a cushioned nook close by. As I did so, there came a rush of water into the saloon, sweeping over the floor in waves as the oscillation of the vessel flung it from one side to the other. And as the flood receded to mass itself in another quarter, a cloud of steam arose, adding to the denseness of the prevailing gloom.

The last shock had evoked a wail of alarm from the surrounding cabins, and the saloon became crowded with people rushing out of their doors. But when they found the floor surging with water and that white vapour floating upward, there was a perfect shriek of dismay: 'The boilers have burst!—the boilers!'

Supposing the water to be scalding, I instinctively placed Millicent Bradley at full length upon the couch. There was no time to save myself; and I let out an unmanly yell as the wave lapped me right up to the knee. It seemed to bite the flesh from my bones. I can stand pain—I used to play football in England. But you just put your stockinged feet into boiling water and try that! In a jiffy I was perched upon the top of a small table, and clapped my hand to my injured extremities; but, strange to say, I was not scalded at all. The water was cold. Others found this out simultaneously. And yet the steam was rising.

The meaning of it flashed upon Millicent first of all—or perhaps this phenomenon only confirmed a fear: 'God help us!' she cried. 'The vessel is on fire!'

The word flew like lightning. All rushed pell-mell out of the saloon and up the stairs to the deck.

'Save me, Horace!' gasped Millicent—in that moment she called me by that name—'Save me, Horace, for the love of Heaven!'

I caught her to my breast like a child—she was a very full-grown woman, and must have weighed eleven stone—I kissed her cheek, her eyes, her lips, and she never murmured. I strode with unswerving steps to the companion-way with that lovely burden soft and supple in my arms. I sprang up the stairs with a confidence I had not possessed in the calmest of weather, and presently stood with her on deck, the wind tearing at us like a legion of devils, and the rushing masses of water dashing over us from head to foot. It would have been too much for me exposed to the full force of it, had not a handy sailor coiled a rope about us and hitched us up securely. He bound us heart to heart, and I stood with her so through the flying hours that dragged so tediously with most people. There and then and thus I told my love to her—and she listened to me. She made me swear that if the ship's company had to take to the boats, I would go with her. If that could not be, she begged me to let her stay and drown with me.

Oh, what a glorious time that was; with the storm beating me almost senseless, the ship a furnace beneath my feet, the utter hopelessness of boats living in such a sea, should the fire break through the battened-down hatches and drive us from the vessel!

Never shall I forget the dawn of that day; the clouds glaring spitefully as they fled away before the sun; the waves cowering into sullenness; the storm-wind screeching in baffled passion—and my deck-chair gone!

They had found the fire, and extinguished it; and with the morning light came the cry of 'Land ahead!' from the lookout.

We should get through it all safely, then; and beyond lay—Paradise! Not the same paradise that we had contemplated in the dark hours, but still paradise; such a one as I would be contented with for all the rest of my life.

A pilot joined us. We steamed into Sandy Hook. They steered the battered hulk of the *Atalanta* into the grand harbour of New York under as goodly a sun as ever smiled on lovers.

Millicent Bradley once again stood by my side and spoke no word. Her dark eyes surveyed the shore and took stock of the monster excursion steamers, the statue of Liberty, and the Brooklyn bridge; but she made no comment. She had not referred to that sweet night of terrors since I found her standing on the promenade deck neatly dressed for going ashore.

We passed the Battery, and drew near to the Company's landing-stage. Presently we were being hauled into the dock. In five minutes the gangways would be run up, and we should have to go ashore. And up to this time, although I had told her all about myself, my family, my position, and my prospects in life, all unimpeachable, she had not confided to me any of her own affairs, not even her destination. But now she turned to me and looked me squarely in the eye. 'You were very kind to me last night, Mr Franklin,' she said, in tones that I fancied trembled a little.

'Mister?' I stammered, aghast at her coldness.

'I am very grateful—I shall always be. Don't think badly of me for being so weak and foolish. I could not bear!'—she hesitated, and shook back a tear that seemed about to sparkle in her eye as she corrected herself: 'I should not like you to—despise me.'

'Oh, Miss—Millicent!' I began.

But she went on firmly: 'Of course we must not take seriously anything which circumstances—so exceptional—so very, very dreadful, indeed—we must not bind ourselves by what such circumstances forced upon us. We will say "Good-bye" now; and—and if—if we never meet again!'

'Millicent!' I cried, catching both her hands, quite heedless of onlookers, 'don't coquette with me after what we have both gone through! You can say calmly to me, "If we never meet again:" I say to you, "Must we ever, ever part?"'

'Yes, we must part—Horace.' The words came slowly, and she did not disengage her hands.

'Why? Where are you going?'

'To Manitoba—to my brother's ranch. I am going to settle there. If you would like to call!'

Manitoba is some three thousand miles from New York, and the Bradley ranch is eighty miles from the railway. But I did 'call,' and it came to pass that I settled there too.

### ELECTRICITY FROM RUBBISH.

THE satisfactory disposal of the Rubbish and refuse of our large towns has for years occupied the close attention of engineers and sanitarians alike, and various modes of dealing with the problem have been advocated and carried into practice; whilst the statement furnished by reliable statistics that London alone produces no fewer than 1,500,000 tons of refuse per annum, affords our readers some adequate idea of the magnitude and importance of the difficulty to be grappled with by local and municipal bodies.

Conveyance of the refuse to the sea has been practised with success; but such mode is obviously too costly for towns not on the seaboard; and under these circumstances, the adoption of cremators, in which the rubbish is wholly consumed by fire, has come more and more into favour; so that at the present moment the majority of the principal cities are either constructing, or about to construct, the new Refuse Cremator. Hitherto, the cremator has been deemed a nuisance, and an unprofitable though necessary burden to the ratepayers; but changes are now in progress which may turn even the cremator to useful account.

Much heat is necessarily evolved in the destruction of the refuse; and the idea is now gaining ground that such heat may be largely and advantageously utilised in the production of steam-power and electricity, instead of being permitted to run to waste. The production of a furnace suitable for the most economical combustion of all kinds of refuse has necessarily required much time and skill; and it was only after twenty-five years of close application to the problem that the late M. Fournet de Livét, a French engineer, succeeded in securing a powerful natural draught in furnaces without artificial means, and in consuming rubbish without smoke or noxious fumes of any kind.

Without entering into the minutiae of M. Livét's invention, it may suffice to state that the latest and most approved generator of steam from refuse consists of three cylinders, two of which are fitted with internal fire-grates and flues; whilst the third one, placed centrally above, is kept about half full of water, and acts as a steam-chest. The specialty of the furnace is the adaptation of such form of flue as will utilise the increasing density or weight of the gases generated as they travel towards the chimney, thus inducing a high velocity of air through the furnace bars, and rapid combustion and intense heat in the furnaces themselves.

A destructor erected on the Livét system is now in operation at Halifax, in Yorkshire, and produces, from the combustion of refuse, electric current sufficient for some two thousand candle-power are lamps, and a search-light of twenty-five thousand candle-power.

It is, of course, unnecessary to point out how widely diverse is the composition of town

refuse; its constituents—ashes, vegetable refuse, tins, cans, old boots, paper, &c., and the million items which find their way sooner or later to the dust-heap—are well known to every one; and obviously any attempt to put a value on the heat-producing capabilities of rubbish must be a little vague in dealing with the subject generally. Taking, however, a rough average of the results obtained, an ordinary sample of town refuse is pronounced by experts to be equivalent to about one-third or one-fifth its weight in coal—namely, from three to five pounds of refuse will generate as much heat as one pound of coal; whilst the refuse after consumption is found to be a clean, massive metallic clinker, well fitted for road material; or, after being ground up, for making mortar.

It is, of course, hardly necessary to add one word of caution in regard to the invention now under consideration. It is not to be assumed that because rubbish is burnt, the electricity necessarily costs absolutely nothing; the cost of plant, distribution of power, and many other expenses, must not be lost sight of, to say nothing of the labour expended in collecting the refuse. Allowing, however, for all this, it is quite clear that an invention which rids the community of a great nuisance, and does so without creating a further one in the shape of noxious fumes and smoke, and at the same time turns to good account the heat generated, must confer benefits on the community at large; and that the keen interest aroused in the new adaptation is amply warranted by the sound economic principles on which it is based.

### THE SPRING-TIDE COMES.

The Spring-tide comes along the way,  
And from her 'broidered kirtle gay  
She scatters daisies o'er the hills;  
Gold dust falls from the daffodils  
That crown her head on fell and brae.  
Her breath woos bloom on bough and spray;  
Bright is the marsh-flower's golden ray,  
When by the softly singing rills  
The Spring-tide comes.

The young lambs round her footsteps play;  
The tassels on the larches sway;  
The blackbird's song the valley fills;  
Above her head the skylark trills;  
The thrushes lilt a roundelay,  
The Spring-tide comes.

MAGDALEN ROCK.

### \* \* TO CONTRIBUTORS.

- 1st. All communications should be addressed to the 'Editor, 339 High Street, Edinburgh.'
- 2d. For its return in case of ineligibility, postage-stamps should accompany every manuscript.
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Printed and Published by W. & R. CHAMBERS, Limited,  
47 Paternoster Row, LONDON; and EDINBURGH.